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DIVISION OF OIL, GAS AND MINING

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August 27, 1993

TO: Minerals File

FROM: Holland Shepherd, Senior Reclamation Specialist HWS

RE: Site Inspection, Moab Salt, Mine, M/019/005, Grand County, Utah

Date of Inspection: August 26, 1993
Time of Inspection: 1:30 - 4:30 p.m.
Conditions: Cloudy, cool
Participants: Rick York, Moab Salt; Holland Shepherd, Tony Gallegos, DOGM

Purpose of Inspection: To catch up on the status on the Moab Salt conceptual water control plan

We met with Rick York and spent some time in his office before going out into the field. We discussed the fact that the permit approval has not been resolved because some of the conditions that were outlined in the original approval have not yet been addressed; mostly, as a result of the state agencies having dropped the ball in regard to the conceptual water control plan. The Division's November 1989 tentative approval condition, was that the operator would finish up and complete a conceptual water control plan with the Division of Water Quality was back in November, 1989. The operator sent in a couple of plan drafts to the Division and the Division of Water Quality (DWQ). The first one was rejected and was re-addressed by Moab Salt. There was no response received by Water Quality regarding the last plan.

The conceptual plan addresses the problem of salt leakage from the operators large evaporation ponds. The salt leaks into the ground and surface water systems. The salt eventually works its way down to the Colorado River and discharges into it. The operator has been attempting to intercept the salt through a variety of means that are discussed in the conceptual plan. The measures that the operator has taken so far may not be totally satisfactory to DWQ or the Division. This inspection was a means of evaluating how this water collection system is working now and what needs to be improved upon, etc.

The first portion of the site we looked at involved the salt storage area that is located to the northwest of the Brine Lake. The operator has dissolved a substantial amount of the salt that used to be in this area. Dissolution of salt is performed with sprinklers and hoses. The salt is used in the recirculation of brines back into the mine, as part of their mining process. Originally the plan was to leave the salt where it was at and try to reclaim it in place, or just leave it as a dead area.

We next took a tour of the evaporation ponds. The operator explained the procedure for detecting leaks and repairing leaks associated with these ponds. Leaks from these ponds are causing the problem with salt leakage into the Colorado River. The operator harvests each pond once a year. Once the salts have been harvested, then the operator looks for leaks. The operator is now using a blue dye,

which helps in evaporating the water quicker and in making the salt whiter. It also identifies where leaks may be located in the ponds. Once the leaks are located, the operator digs down through about 6-8 inches of hardened salt and repairs the leaks in place.

After looking at the ponds we went down into the canyons where the collection systems have been set up to intercept leakage from the salt water evaporation ponds. We looked at Canyon #3 and Canyon #4 where the salt leakage is predominately coming from the evaporation ponds. Canyon #3 contains the bulk of the collection system, dikes and pumps. The operator has installed an impoundment in Canyon #3, which intercepts a lot of the drainage coming down through the canyon, both ground water and surface water. About 200 yards beyond this dike is a deep french drain the operator has installed to intercept brine water. The french drain has three pumps that are constantly on line and pumping salt water to a main pump which pumps water back up to the salt water impoundment and from there the leakage water is pumped back up to the ponds.

When storms occur, it is possible for storm water to bypass/overflow the impoundments and go into the Colorado River. Brine water is intercepted by the impoundment in Canyon #3 and the french drain intercepts water coming out of Canyon #3 and #4.

The operator has attempted to revegetate the area that is just up off the Colorado River and down from the impounding structures where Canyons 3 and 4 intercept. Unfortunately, this area was inundated by the Colorado River this spring and impacted the revegetation efforts the operator was attempting. However, it looks like the Colorado River water has brought in a healthy crop of tamarisk and other weedy species, that will vegetate very rapidly. This will help to stabilize this area and help to limit water that would be draining down into the Colorado River from this mine site. Some of the plants that were growing in this area included tamarisk; cochia; halogeton, russian thistle, native sunflower, cockleburr, saltbush, greasewood grass and anything else that likes salt.

At the end of the inspection, we agreed with Mr. York to revisit the canyon collection system conceptual plan and to finalize that with DOGM and DWQ. This will facilitate the Division's final approval of the Moab Salt permit.

jb
cc: Wayne Hedberg, DOGM (route)


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